

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/728,565	USCHOLD ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Henry S. Hu	1713	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment of November 18, 2005.
2. ☒ The allowed claim(s) is/are 22-31.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

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| <ol style="list-style-type: none"> <li>1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br/>Paper No./Mail Date _____</li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br/>of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</li> <li>6. <input type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date _____</li> <li>7. <input type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input type="checkbox"/> Other _____</li> </ol> |
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### **DETAILED ACTION**

1. Applicants' **Amendment** filed on November 18, 2005 was received. With the amendment, **Claim 26 was amended; non-elected Claims 1-21 were canceled, while new Claim 31 was added.** To be more specific, **Claim 26** was only amended to correct the improper claim dependency in claim objection as suggested by the examiner. Newly added dependent **Claim 32** relates to monomer of perfluoro(ethyl vinyl ether), which is the subject matter in the cancelled Claim 6.

The Applicants have made two corrections on pages 4 and 14 for informalities (a) and (b) in specification as pointed out by the Examiner. The examiner thereby withdraws specification objection and claim objection in the previous Office Action dated May 17, 2005. **Claims 22-31 are now pending** with only one independent claim (Claim 22). An action follows.

2. Claim rejections under 35 USC 102 rejections in previous Office Action filed on May 17, 2005 are now removed for the reasons given in paragraphs 3-11 thereafter.

### ***Allowable Subject Matter***

3. Claims 22-31 are allowed.

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4. The following is an examiner's statement of reasons for allowance: The above Claims 22-31 are allowed over the closest references:

5. *The limitation of amended parent Claim 22 of present invention relates to a process for sealing a seam between two sections of sheet material wherein each section has at least one fluoropolymer surface, said process comprising: (A) forming a band of heat sealable composition comprising a copolymer of tetrafluoroethylene and at least about 15% by weight of a highly fluorinated monomer, said copolymer having a melt viscosity of no greater than about 1000 Pa.S at 372°C and an application temperature of no greater than about 250°C; (B) positioning said band over said seam between said two sections of sheet material such that said heat sealable composition contacts one fluoropolymer surface of each section; (C) heating said band to a temperature no greater than 250°C sufficient to seal said seam; and (D) allowing said heat sealable composition to cool.*

*See other limitations of dependent Claims 23-31.*

6. In view of the Applicants' amendment, only dependent Claim 26 is found to correct the improper claim dependency as pointed out in claim objection. In a close examination, parent Claim 22 is related to a process to a process for sealing a seam to be between two sections of sheet material, wherein each section has at least one fluorinated copolymer on the surface. The key point is that such a copolymer "tetrafluoroethylene" and at least about 15% by weight of "a" highly fluorinated monomer. It is thereby noted that only "dipolymer" is involved since only two different monomers are being used according to the statement on monomer ratio in

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parent Claim 22. Such dipolymers would also carry two properties as: (A) a melt viscosity of no greater than about 1000 Pa.S at 372°C and (B) an application temperature of no greater than about 250°C.

7. In a close examination on two 102(b) rejections, both two references including Krause and Adiletta are found to use different joining process as well as not specifically use the claimed dipolymers having the claimed melt viscosity and application temperature. As exactly pointed out by the Applicants on page 9 bottom section and page 11 top section of Remarks, Krause's process involves a stitching step to tie the melt-processable fluoropolymer, and then heating to fuse the strip and/or the thread to seal the holes created by stitching; while Adiletta's process involves the step of folding the laminate, sewing and heating enough to permit the melt-processable fluoropolymer to flow into and seal the stitching holes.

8. With respect to the fluoropolymers used by Krause and Adiletta, as the Applicants have pointed out that they do not carry the claimed melt viscosity and working temperature (see page 10 middle section and page 11 middle section of Remarks). The Applicants specifically show that commercially FEP, a copolymer of TFE and HFP, has a melting point of at least about 260 °C. Other fluoropolymers used by Krause and Adiletta are not with the type of TFE-containing copolymer. For instance, Krause may use polychlorotrifluoroethylene, polyvinylidene fluoride and a copolymer of ethylene and chlorotrifluoroethylene (page 5, line 9-16); while Adiletta may use silicone polymer (column 2, line 32-33).

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9. On page 9 middle section of Remarks, the Applicants have presented the advantages for sealing a seam by using such a fluorinated TFE-containing copolymer. With such a specified melt viscosity it will facilitate the sealing, while no decomposition by heating is observed since a low working temperature below 250 °C is applied.

Additionally, the present invention has shown in examples along with some comparative examples for making such a sealing by using a TFE-containing melt-processable copolymer (see pages 14-18 for **examples 1-5** and its control examples **A-B**). Newly added dependent **Claim 32** relates to monomer of perfluoro(ethyl vinyl ether), which is the subject matter in the cancelled Claim 6. Therefore, all the above-mentioned two references, in combination or alone, does not teach or fairly suggest the limitations of present invention.

10. After further examination and search, the examiner found the following prior art did not teach the claimed limitation:

**US Patent No. 5,658,960 to Dolan** discloses **thermoplastic polymer** such as fluorinated ethylene and propylene (FEP) may have a melting point of 342 °C or less; while non-thermoplastic PTFE polymer can only be stretched at a temperature of 200-300 °C (column 3, line 14-17 and 45-53). Additionally, **Dolan does not teach or fairly suggest apply thermoplastic fluoropolymer to seal a seam at such a melt viscosity and such a low working temperature.** Therefore, Dolan fails to teach or fairly suggest the limitation of present invention.

US Patent No. 6,016,848 to Egres only discloses using thermoplastic polymer such as fluorinated ethylene and propylene (FEP) as adhesive (column 9, line 9-36). As discussed above, FEP has a melting point of at least about 260 °C. Additionally, Egres does not teach or fairly suggest apply thermoplastic fluoropolymer to seal a seam at such a melt viscosity and such a low working temperature. Therefore, Egres fails to teach or fairly suggest the limitation of present invention.

11. The key issue, regarding making a sealing on the seam between two sections of sheet material, wherein each section has at least one fluorinated TFE-containing "dipolymer" on the surface, and wherein dipolymers carrying two properties as: (A) a melt viscosity of no greater than about 1000 Pa.S at 372°C and (B) an application temperature of no greater than about 250°C, cannot be overcome by any or the combination of the above references, therefore, the present invention is novel.

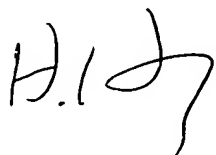
12. As of the date of this office action, the examiner has not located or identified any reference that can be used singularly or in combination with another reference including the above references to render the present invention anticipated or obvious to one of the ordinary skill in the art. Therefore, the independent and parent process **Claim 22** is allowed for the reason listed above. Since the prior art of record fails to teach the present invention, the remaining pending dependent **Claims 23-31** are passed to issue.

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13. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu whose telephone number is (571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The fax number for the organization where this application or proceeding is assigned is **(571) 273-8300** for all regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Henry S. Hu

Patent Examiner, art unit 1713, USPTO

December 23, 2005



DAVID W. WU  
SUPERVISORY PATENT EXAMINER  
ELECTRONIC BUSINESS CENTER 1700